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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,939	10/30/2003	Akihiro Miyauchi	520.43241X00	6291
20457 7590 04/16/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT 1743	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	
3 MONTHS			04/16/2007	
			DELIVERY MODE PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/695,939	Applicant(s) MIYAUCHI ET AL.	
	Examiner Paul S. Hyun	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14 and 16-27 is/are pending in the application.
- 4a) Of the above claim(s) 6, 9, 16 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5, 7, 8, 10-14 and 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/4/04, 8/10/04, 2/14/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

REMARKS

Claims 2-14 and 16-27 are currently pending. In response to the written restriction requirement dated 12/18/06, Applicants changed the dependency of claims 18 and 19 and elected to prosecute Group I, claims 2-8, 10-14, 17 and 20-26 and Species A, claims 5 and 6. Because the dependency of claims 18 and 19 were clearly erroneous, the amendments are accepted and claims 18 and 19 will be examined on the merits along with the elected claim group.

Applicants' argument that claim 23, which was categorized as species B in the restriction requirement, should be included as species A is persuasive. Therefore, claim 23 will also be examined on the merits along with the elected species A.

In summary, claims 2-5, 7, 8, 10-14 and 17-26 will be examined on the merits. Claims 6, 9, 16 and 27 are hereby withdrawn from further consideration as being drawn to non-elected inventions.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of layers of micro pillars recited in claim 19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 18 and 19 are objected to because of the following informalities:

The "the supporting member" recited in the claims should be changed to "the base member".

Appropriate correction is required.

Claims 21 and 22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

The limitations recited in claims 21 and 22 are already recited in claim 24.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims **24-26** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14, 6 and 16 of copending Application No. 10/985,972, respectively. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 14, 6 and 16 of copending Application No. 10/985,97 recite all the limitations of claims 24-26 of the instant application, respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **14 and 19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the upper substrate". There is insufficient antecedent basis for this limitation in the claim.

The structure of the substrate recited in claim 19 is indefinite. The claim recites that a plurality of layers of micro pillars are supported on **the** supporting member, yet the claim also recites that each layer is bonded to supporting members. First, it is unclear whether all of the layers are supported on a single supporting member or if each layer is supported on separate supporting members. Second, the claim recites that each layer is bonded to multiple supporting members. It is unclear how a single layer can be bonded to multiple substrates.

Because the structure of the substrate recited in the claim is indefinite, claim 19 will not be examined on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **2-5, 7, 8, 10-14, 17 and 20-26** are rejected under 35 U.S.C. 102(e) as being anticipated by Agrawal et al. (US 7,195,872 B2).

Agrawal et al. claim priority to provisional application 60/393,044 filed on July 1, 2002. The provisional application includes all disclosure relied upon in the rejection.

Agrawal et al. disclose a substrate comprising a textured surface for conducting chemical and biological reactions. The textured surface are formed by microfeatures, and the microfeatures increase surface area for conducting reactions (see Abstract). The microfeatures can be integral with the substrate or be made from a material different from the substrate (see lines 10-17, col. 17). The substrate and the microfeatures can be a thermoplastic organic polymer such as polyethylene, polystyrene and PTFE, which is inherently hydrophobic (see lines 17-35, col. 12) or a metal (see lines 50-65, col. 4). The shape of the microfeatures can be a cone or a pillar (see lines 55-60, col. 4). The microfeatures that form the textured surface can have heights between 0.1 to 100 microns and cross-sections between 0.01 to 500 sq. microns (i.e. about 0.035 microns to 25 microns in diameter if the shape of the microfeature is cylindrical, which then corresponds to an aspect ratio greater than 8), and the spacing between the microfeatures can be equivalent to the cross-sectional dimensions of the microfeatures, which can range from about 0.035 to about 25 microns if the shape of the microfeature is cylindrical (see lines 18-22, col. 19). The microfeatures can also be functionalized with biomolecules such as nucleic acid and peptides to facilitate reactions (see lines 47-65, col. 5).

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It should be noted that claims 20 and 24 are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, the determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Because Agrawal et al. disclose all the structural limitations of the product, it is considered prior art.

Even if the process of making the product did further limit or define the product, Agrawal et al. disclose that the microfeatures can be formed by compression molding (see line 59, col. 16), which is the process that the claims appear to recite. Although the reference does not explicitly disclose the steps of the compression molding, it is well known in the art that compression molding comprises the steps of pressing a mold onto molding material such that the molding material develops the negative shape of the mold, and separating the mold from the molding material.

With respect to claim 10, it should be noted that the claim recites a method step of "lacking" to form clearances, which does not limit the structure of the claimed substrate.

Claim 14 recites intended use of the claimed biochip. It should be noted that limitations directed towards intended use do not have patentable significance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal et al.

Agrawal et al. do not explicitly disclose that the microfeatures comprise a shape that tapers towards the end connected to the substrate such that the base is thinner than the distal end. However, Agrawal et al. disclose that the microfeatures can comprise any shape that changes cross-section with depth such that they provide non-planar topography to the surface (see lines 30-40, col. 16).

In light of the disclosure of Agrawal et al. it would have been obvious to one of ordinary skill in the art to form microfeatures that taper toward the end connected to the substrate since such a shape changes cross-section with depth such that provides non-planar topography to the surface.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul S. Hyun whose telephone number is (571)-272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PSH
4/6/07


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